

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of)
Tadahiro OHMI et al.) Group:
Serial No.:)
Filed: December 27, 2000)
Title: WELDING METHOD FOR FLUORINE-) Examiner:
PASSIVATED MEMBER FOR WELDING)
FLUORINE-PASSIVATED METHOD)
AFTER BEING WELD, AND WELDED)
PARTS)

PRELIMINARY AMENDMENT

Hon. Commissioner of Patents
Washington, D.C. 20231

Sir:

Applicant hereby submits the following Amendment.

IN THE SPECIFICATION

Please insert the following paragraph on page 1, as the first paragraph before "BACKGROUND OF THE INVENTION AND DESCRIPTION OF RELATED ART".

--This case is a divisional of co-pending U. S. Patent Application No. 09/130,583.--

IN THE CLAIMS

1. (Amended) A welding method for materials to be welded which are subjected to fluoride passivation treatment, wherein, when materials to be welded, comprising the steps of:

[stainless steel subjected to fluoride passivation treatment are welded,] adding hydrogen [is added] to a gas (back shield gas) flowing through the materials to be welded; and
welding stainless steel which is subjected to fluoride passivation treatment.

In Claim 2, line 1, please delete "A" and insert --The--.

In Claim 2, line 2, please delete "claim" and insert
--Claim--.

In Claim 3, line 1, please delete "A" and insert --The--.

In Claim 3, line 2, please delete "claim" and insert
--Claim--.

In Claim 4, line 1, please delete "A" and insert --The--.

In Claim 4, line 2, please delete "claim" and insert
--Claim--.

In Claim 5, line 1, please delete "A" and insert --The--.

In Claim 5, line 2, please delete "claim" and insert
--Claim--.

In Claim 6, line 1, please delete "A" and insert --The--.

In Claim 6, line 2, please delete "claim" and insert
--Claim--.

In Claim 7, line 1, please delete "A" and insert --The--.

In Claim 7, line 2, please delete "claim" and insert
--Claim--.

In Claim 8, line 1, please delete "A" and insert --The--.

In Claim 8, line 2, please delete "claim" and insert
--Claim--.

9. (Amended) A welding method for materials to be welded
which are subjected to fluoride passivation treatment, comprising
the steps of:

supplying stainless steel subjected to fluoride passivation
treatment wherein the thickness of a fluoride passivated film in
a prespecified range from butt end surfaces of members to be

welded[, comprising stainless steel subjected to fluoride passivation treatment,] is set to 10 nm or less[,]; and welding stainless steel [is conducted].

10.(Amended) [A]The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with [claim]Claim 9, [wherein] further comprising the steps of:

5 immersing a region of at least 5 mm from said butt end surfaces of said materials to be welded [is immersed] in an aqueous solution containing hydrofluoric acid and hydrogen peroxide, and welding is subsequently conducted.

In Claim 11, line 1, please delete "A" and insert --The--.

In Claim 11, line 2, please delete "claim" and insert --Claim--.

In Claim 12, line 1, please delete "A" and insert --The--.

In Claim 12, line 2, please delete "claim" and insert --Claim--.

In Claim 13, line 1, please delete "A" and insert --The--.

In Claim 13, line 2, please delete "claim" and insert --Claim--.

14.(Amended) [A]The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with [claim]Claim 9, [wherein]further comprising the steps of:

5 immersing a region of at least 5 mm from said butt end surfaces of said materials to be welded [is immersed] for a

period of 5 minutes or more in hot water within a range of 60 - 90°C[,]' removing a film [is removed,]; and welding is subsequently conducted.

15. (Amended) A welded product [welded] produced using [a] the welding method in accordance with [one of claims] Claim 1 [- 14].

16. (Amended) [A] The welding [fluoride passivation retreatment] method, [wherein, after conducting welding using a welding method] in accordance with [one of claims] Claim 1 [- 14], further comprising the steps of:

heating at least the welded part after welding [is heated,] and flowing a gas containing fluorine gas [flows] through the interior of said parts.

17. (Amended) A welded product, produced [wherein treatment is conducted] in accordance with the [fluoride passivation retreatment] welding method of [claim] Claim 16.

18. (New) A welding product produced using the welding method in accordance with Claim 9.

19. (New) A welding product produced using the welding method in accordance with Claim 10.

20. (New) A welding product produced using the welding method in accordance with Claim 14.

21. (New) The welding method, in accordance with Claim 9, further comprising the steps of:

heating at least the welded part after welding and flowing a gas containing fluorine gas through the interior of said parts.

22. (New) The welding method, in accordance with Claim 10, further comprising the steps of:

heating at least the welded part after welding and flowing a gas containing fluorine gas through the interior of said parts.

23. (New) The welding method, in accordance with Claim 14, further comprising the steps of:

heating at least the welded part after welding and flowing a gas containing fluorine gas through the interior of said parts.

24. (New) A welded product, produced in accordance with the welding method of Claim 21.

25. (New) A welded product, produced in accordance with the welding method of Claim 22.

26. (New) A welded product, produced in accordance with the welding method of Claim 23.

IN THE ABSTRACT

Please substitute the abstract attached hereto for the abstract presently on file.

REMARKS

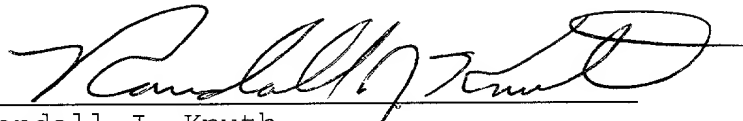
Applicant submits herewith a substitute abstract for the abstract currently on file to place to abstract in proper U.S. form. No new matter has been added.

Applicant has amended the Claims to place the Claims in proper U.S. form.

In addition, applicant has rewritten the Claims to remove the multiple dependent Claims.

If the Examiner has any questions, the Examiner is invited
to telephone the undersigned at (219) 485-6001.

Respectfully submitted,


Randall J. Knuth
Registration No. 34,644

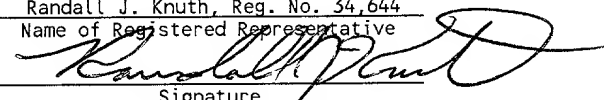
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Replacement Abstract
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being
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Randall J. Knuth, Reg. No. 34,644
Name of Registered Representative


Signature
December 27, 2000
Date

CLEAN SPECIFICATION PARAGRAPHS AFTER DECEMBER 27, 2000

PRELIMINARY AMENDMENT

This case is a divisional of co-pending U. S. Patent
Application No. 09/130,583.

CLEAN CLAIMS AFTER PRELIMINARY AMENDMENT OF DECEMBER 27, 2000

1. A welding method for materials to be welded which are subjected to fluoride passivation treatment, wherein, when materials to be welded, comprising the steps of:

adding hydrogen to a gas (back shield gas) flowing through the materials to be welded; and

welding stainless steel which is subjected to fluoride passivation treatment.

2. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 1, wherein the hydrogen added to said back shield gas is within a range of 0.1% - 20%.

3. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 1, wherein the hydrogen in said back shield gas is within a range of 3 - 10%.

4. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 1, wherein the hydrogen in said back shield gas is within a range of 5 - 10%.

5. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 1, wherein said back shield gas has a noble gas as a chief component thereof.

6. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 5, wherein said noble gas comprises argon gas.

7. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 1, wherein the flow rate of said back shield gas is 6L/min or more.

8. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 1, wherein the flow rate of said back shield gas is within a range of 6 - 10 L/min.

9. A welding method for materials to be welded which are subjected to fluoride passivation treatment, comprising the steps of:

supplying stainless steel subjected to fluoride passivation treatment wherein the thickness of a fluoride passivated film in a prespecified range from butt end surfaces of members to be welded is set to 10 nm or less; and

welding stainless steel.

10. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 9, further comprising the steps of:

immersing a region of at least 5 mm from said butt end surfaces of said materials to be welded in an aqueous solution containing hydrofluoric acid and hydrogen peroxide, and welding is subsequently conducted.

11. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 10, wherein the temperature of said aqueous solution is within a range of 60 - 90°C.

12. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 10, wherein the temperature of said aqueous solution is within a range of 80 - 90°C.

13. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 10, wherein the period of immersion in said aqueous solution is 5 minutes or more.

14. The welding method for materials to be welded which are subjected to fluoride passivation treatment in accordance with Claim 9, further comprising the steps of:

immersing a region of at least 5 mm from said butt end surfaces of said materials to be welded for a period of 5 minutes or more in hot water within a range of 60 - 90°C' removing a film; and

welding is subsequently conducted.

15. A welded product produced using the welding method in accordance with Claim 1.

16. The welding method, in accordance with Claim 1 further comprising the steps of:

heating at least the welded part after welding and flowing a gas containing fluorine gas through the interior of said parts.

17. A welded product, produced in accordance with the welding method of Claim 16.

18. A welding product produced using the welding method in accordance with Claim 9.

19. A welding product produced using the welding method in accordance with Claim 10.

20. A welding product produced using the welding method in accordance with Claim 14.

21. The welding method, in accordance with Claim 9 further comprising the steps of:

heating at least the welded part after welding and flowing a gas containing fluorine gas through the interior of said parts.

22. The welding method, in accordance with Claim 10 further comprising the steps of:

heating at least the welded part after welding and flowing a gas containing fluorine gas through the interior of said parts.

23. The welding method, in accordance with Claim 14 further comprising the steps of:

heating at least the welded part after welding and flowing a gas containing fluorine gas through the interior of said parts.

24. A welded product, produced in accordance with the welding method of Claim 21.

25. A welded product, produced in accordance with the welding method of Claim 22.

26. A welded product, produced in accordance with the welding method of Claim 23.

ABSTRACT OF THE DISCLOSURE

A welding method for materials to be welded which are subjected to fluoride passivation treatment, and a fluoride passivation retreatment method, wherein, when fluoride passivation retreatment is conducted after welding, there is no generation of particles or dust. The method provides superior resistance to fluorine system gases. During fluoride passivation treatment, hydrogen is added to the gas (the back shield gas) flowing through the materials to be welded. In one embodiment of the welding method, the thickness of the fluoride passivated film in a predetermined range from the butt end surfaces of the materials to be welded is set to 10 nm or less, followed by subsequent welding. Furthermore, the fluoride passivation retreatment method, includes the steps of heating at least the welded parts following welding and flowing a gas containing fluorine gas in the interior portion of the parts.